

Patent Claims

1. A method to bend and reshape profiles through roll or matrix bending, wherein the profile to be bent or reshaped is bent or reshaped under the influence of one or more bending tools, **characterized in that** an oscillator is provided for at least one of the bending and/or reshaping tools, the oscillations from which being applied to the profile to be bent or reshaped in at least the reshaping zone.
2. A method according to claim 1, **characterized in that** the reshaping of the profile is done using a roll bending process.
3. A method according to claim 1 or 2, **characterized in that** the oscillations act in the longitudinal direction and/or in the radial direction onto the bending tool.
4. A method according to one of claims 1 through 3, **characterized in that** oscillations are also introduced to the advancing tools.
5. A method according to one of claims 1 through 4, **characterized in that** oscillations are also introduced to the mandrel shaft tools.
6. A method according to one of claims 1 through 5, **characterized in that** the profile to be bent or reshaped is subjected to a flow process, that the outside of the material of the profile to be reshaped is stretched, that it is compressed on the opposite area and that it is subjected to oscillations during the flow process.
7. A method according to one of claims 1 through 6, **characterized in that** two or three-dimensional oscillations are imparted to the bending and reshaping tools.
8. A method according to one of claims 1 through 7, **characterized in that** the oscillation is done in the range from 16 to 20 kHz.

9. A device to bend and reshape profiles through roll or matrix bending, wherein the profile to be bent or reshaped is bent or reshaped under the influence of one or more bending tools, **characterized in that** an oscillator is provided for at least one bending and/or reshaping tool, the oscillations from which being applied to the profile to be bent or reshaped in at least the reshaping zone.

10. A device according to claim 9 to execute the method according to one of claims 1 through 8, **characterized in that** at least one oscillator is provided for at least one of the bending and reshaping tools.

11. A device according to claim 9 or 10, **characterized in that** the oscillator operates electromagnetically.

12. A device according to claim 9 or 10, **characterized in that** the oscillator operates piezoelectrically.

13. A device according to one of claims 9 through 12, **characterized in that** the oscillator introduces oscillations to the bending and/or reshaping tool directed in the longitudinal direction.

14. A device according to one of claims 9 through 13, **characterized in that** the oscillator introduces oscillations to the bending and/or reshaping tool in the radial direction.

15. A device according to one of claims 9 through 14, **characterized in that** the oscillator has three dimensional, current-fed electromagnetic windings.

16. A device according to one of claims 9 through 14, **characterized in that** the oscillator produces mechanical oscillations = ≤ 50 Hz.

17. A device according to one of claims 9 through 16, **characterized in that** additional vibration saddles (8, 9) are also placed between the oscillatorily excited bending and/or reshaping tools, said saddles sitting against the profile to be bent.
18. A device according to one of claims 9 through 17, **characterized in that** an oscillator (30) is located in the chuck (12), said oscillator exerting a longitudinally directed oscillation onto the profile (20) held there via the jaws (14).
19. A device according to one of claims 9 through 18, **characterized in that** the mandrel station (17), which supports the free rear ends of the mandrel rods (13), is acted upon by an associated oscillator (36).
20. A device according to one of claims 9 through 19, **characterized in that** an oscillator is located at the mandrel shaft seat (18) that introduces an oscillation to the mandrel shaft (16) in the vertical direction.